TECHNICAL NOTE

CHROMATOGRAPHY DATA SYSTEMS

Lantronix ETS8P Terminal Server
Configuration and Troubleshooting

Introduction

There are a number of ways the Lantronix® terminal server can be configured for use with TotalChrom® Chromatography Data Systems. You could use the software that is shipped with each terminal server; however, this requires installing the software on either a server or workstation machine. In many locations under regulatory compliance locks, this may be restricted by internal SOPs. Another option is to use existing programs included with the operating system.

This technical note provides the steps to configure and troubleshoot a Lantronix ETS8P 8 port terminal server for use in the TotalChrom CDS environment, using existing programs included with the operating system.

Hardware and software requirements

Before you start, make certain you have the following:

Hardware:

- Desktop/Laptop with Windows® XP/2000, or NT 4.0.
- Network patch cables appropriate for your network environment. If the terminal server is to be connected directly to your desktop/laptop then you will need a cross-over patch cable. These are generally available from you local network administrator or your local computer or office supply store.
- A serial connector and cable. These can be home-made or purchased directly from PerkinElmer®. These cables are available in various lengths. For purposes of this technical note, a 7′ cable (p/n S5001-0033) will suffice.

Software:

These applications are generally available on your desktop.

- HyperTerminal
- Notepad
- Telnet

Networking Parameters:

These are generally obtained from your local network administrator.

- IPADDRESS for each server to be configured
- SUBNET MASK
- GATEWAY
- Text file containing the list of parameters specific to the Lantronix terminal server. The text file can be obtained from your TotalChrom Support Specialist if you do not already have one.

PerkinElmer® precisely.

Configuration

As stated earlier we will be referring to the Lantronix ETS8P terminal server. Connect the terminal server as indicated in the Figure 1.

Some older Lantronix terminal servers require an active network connection before configuration, so we will need to connect the Ethernet port to an active network connection.

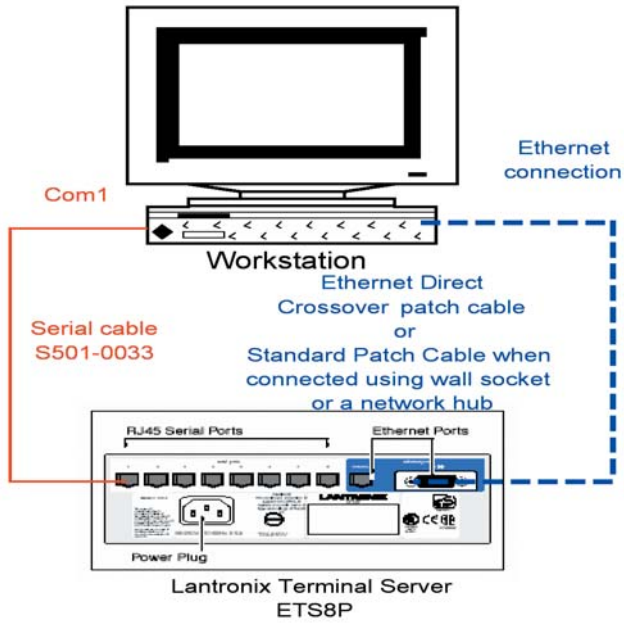
If we are connecting the terminal sever directly to the PC, then we will use a cross-over Ethernet patch cable.

If the terminal server is connected to the wall or a network hub, then a standard patch cable will be needed for the PC and the terminal server.

Be sure to connect the serial cable (S501-0033) to the serial port on the PC configured as COM1 using the DB9 to RJ45 adapter and plugging into port 1 on the terminal server.

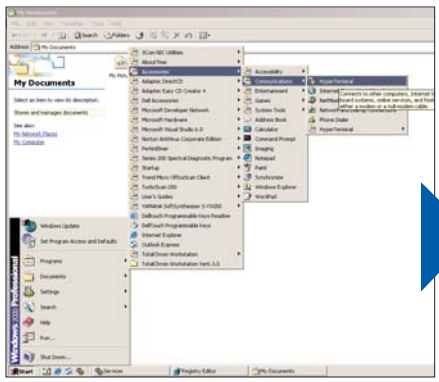
With all connections made and power applied you can now begin the configuration process.

Figure 1



Step 1

Log into the PC, select Start | Programs | Accessories | Communications | HyperTerminal.



Step 2

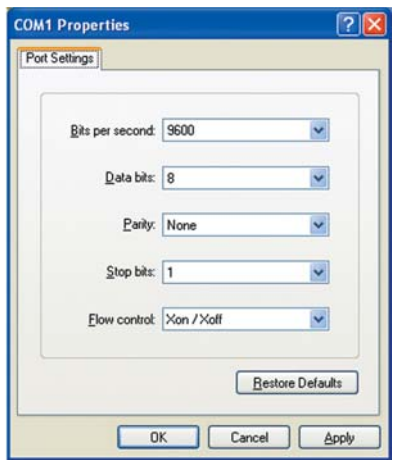
At this point a window will pop-up and request a name for a new connection. A single character is all that is required, but for the purpose of this technical note, enter *TS*.

Step 3

When the following window pops up make sure to select COM1 as shown.

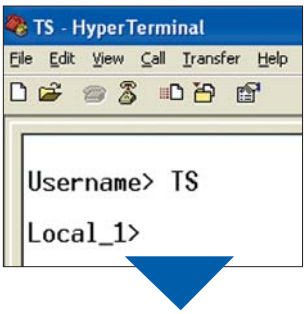
Step 4

Select the port setting as shown.



Step 5

The HyperTerminal window will open. Select the {Enter} key. The terminal server will respond and request a name. Continue using TS as the name.



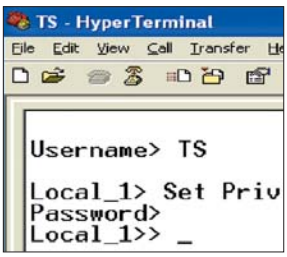
Step 6

The terminal server is now in the local mode, meaning you can view the configuration but not make changes. In order to make changes you will need to put the terminal server in the privileged mode. Type the command: *Set Priv* – this is *not* case sensitive.

The terminal server responds with a request for a password, the password *is* case sensitive.

The password is *system* – the characters are not visible when typing the password.

Notice the >>; this indicates that the terminal server is in the privileged mode thus it is ready to accept changes.



Step 7

The terminal server is now ready to accept parameter changes. To make changes the text file will be used. The text file contains the standard parameters needed for the Lantronix terminal server to communicate on the network for TotalChrom purposes.

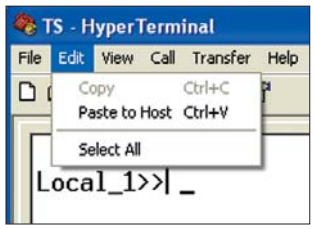
A couple of adjustments will be necessary to the text file. The IPADDRESS, SUBNET MASK, and GATEWAY values are required; these should be obtained from your network administrator.

You will notice using this file that ports 2 – 8 are configured, port 1 is not configured for several reasons. First, in case one of the configured ports fails, you can easily configure port 1, and you will not have to replace the terminal server because of one dead port. Second, it may need to be used as a "console port." The console port allows for a local connection. This is how we are connected presently.

Note: If you are planning to configure a 16 or 32 port Lantronix terminal server, this same file can be used. Just open the file in Notepad and use the Replace option under the Edit drop down, to replace "2-8" with either "2-16" or "2-32" instead. It is that easy.

Step 8

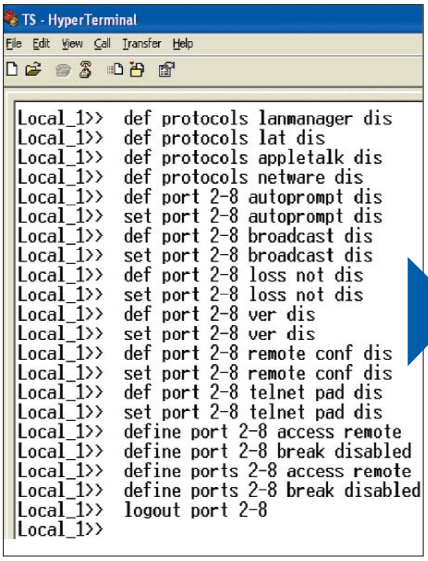
Now that the text file has been updated, select the contents of the file and place it on the clipboard, using the quick keys, Ctrl-A, Ctrl-C. To change focus to the HyperTerminal window select the Paste to Host option as shown here.



Step 9

The contents of the file are now pasted to the terminal server.

These commands can be entered manually. By using the text file you are reducing the possibility of human error. This text file can be used to configure multiple terminal servers by modifying a couple of parameters: IPADDRESS, SUBNET MASK, & GATEWAY. The IPADDRESS must be unique for each terminal server. The SUBNET MASK and GATEWAY may not change, be sure to check with your local network administrator.

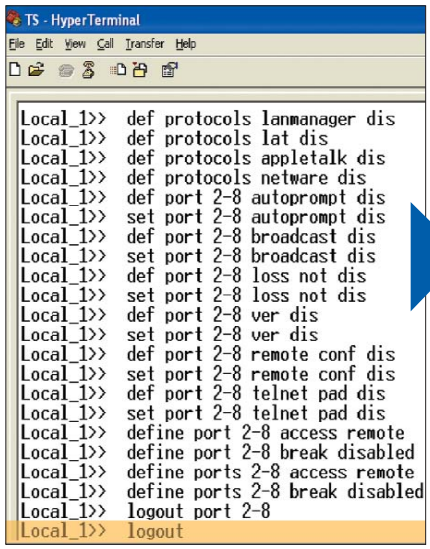


Step 10

Now that configuration is complete and before you power cycle the terminal server, it is best to log out by typing the command *Logout*.

After typing the command Logout, the terminal server should respond with "Exiting the Lantronix ETS8P."

To make sure that the parameters have been entered and retained in flash memory, it is best to power cycle the terminal server. Do not disconnect your HyperTerminal session, maintaining the session allows you to see the terminal server reinitialize.

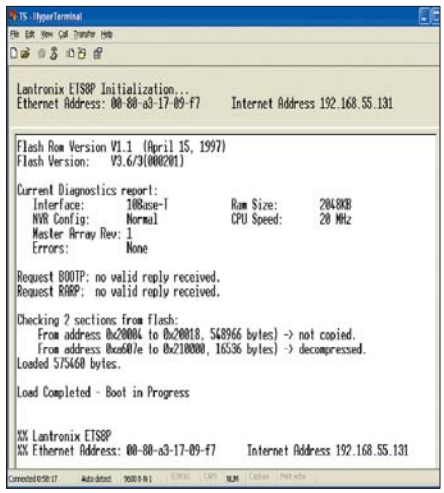


Step 11

Verify that the IPADDRESS is the value that you entered in Step 9. Generally you can be assured that if this value is as expected then the rest of the entries have also been retained in flash memory.

If you would like to verify this, just log in by selecting the {Enter} key and entering a user name.

The terminal server is now ready to be added to the TotalChrom's configuration.



Troubleshooting

Now that the terminal server is configured for use in TotalChrom, what happens when you cannot communicate with it or the interfaces connected to it?

The more common problems are:

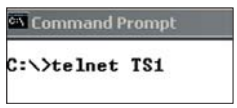
- GATEWAY – you just forgot to add the parameter.
- Name resolution – remembering that the name is used rather than the IPADDRESS in the TC configuration. Sometimes the information never makes it to the network administrators that are tasked with entering this information in DNS.
- A locked port.

Now that the terminal server is available on the network you can use Telnet.exe which is another program that is generally available on the desktop. For the purpose of the technical note, use TS1 as the entry in DNS for name resolution of the terminal server. The terminal server must be connected to an active network port.

Step 1

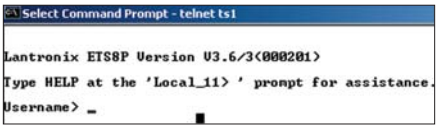
To connect to the terminal server using a Telnet session, you must be in a CMD window, also referred to as a DOS box.

From here use the command: C:\>*Telnet TS1*



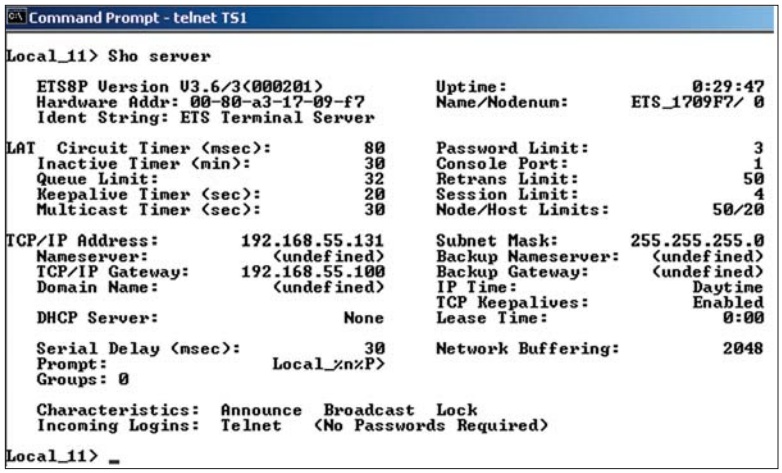
Step 2

From here you will see the logon screen to communicate with the terminal server. Log on as a user (any name will do). The following steps may help determine the cause of the problem.



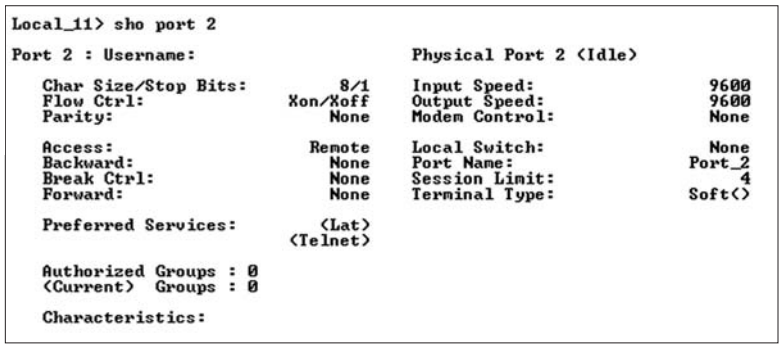
Step 3

Type in the command *Sho Server;* from here the server parameters can be viewed.



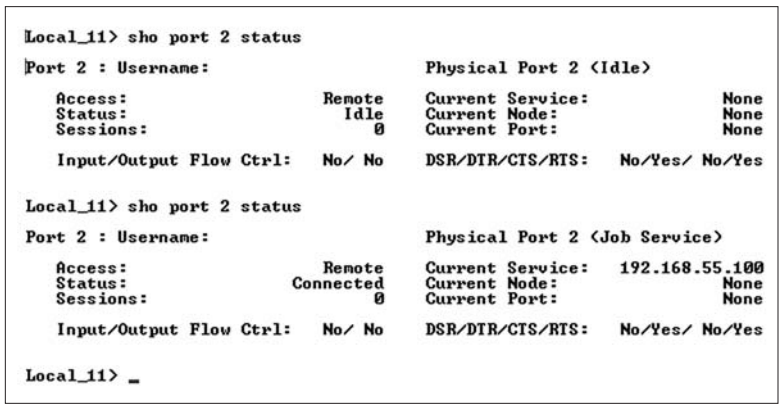
Step 4

Type in the command *Sho Port #*; shows port characteristics.
Example: Sho port 2



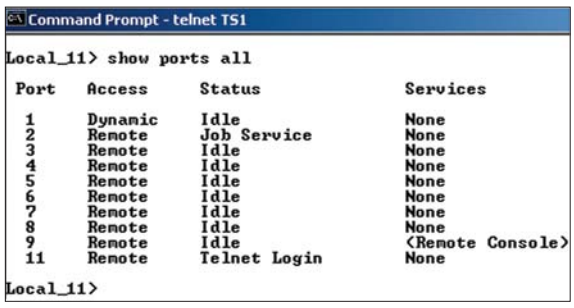
Step 5

Type in the command *Sho Port # Status*; shows what device is connected to the terminal server port. In the example to the right, there are two entries. The first shows when the port is not configured in TotalChrom, the second shows when the port is configured. Notice the Physical Port is either Idle or Job Service; the IPADDRESS of the controlling device is now visible.



Step 6

Type in the command *Sho Ports All;* this shows the status of all ports.



Checking terminal server availability

Before we attempt to add an interface in TotalChrom we should verify that the interface is available on the wire. This can be accomplished by communicating directly with the interface using a Telnet session.

Step 1

Using the command *Telnet* [*terminal server*] [*Port #*] we will communicate with a 970a A/D interface. In the example at the bottom of the page, the interface is connected to port 3 on the terminal server.

Step 2

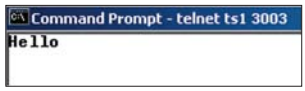
Send the @ character by selecting the Shift + 2 keys simultaneously then selecting the {Enter} key. You should receive a response from your 970a interface. Expect different values for different 900 series interfaces i.e. 950(a), 960(a), 970(a).

This indicates a successful connection.

Step 3

The 600 series D/D and 941(a) A/D have a different command requirement. The easiest way to communicate with the interfaces is to connect as previously described using the Telnet command, terminal server name, and the appropriate port number. Once you are connected then power cycle the box, they should respond with Hello as listed below. You will notice the information at the top of the window – terminal server name and port number.

This indicates a successful connection.



Conclusion

Once you have successfully communicated with the interfaces using these commands then configuring the interfaces in the TotalChrom environment should be relatively straight forward.

Author

By Robert Santerre,
Senior Systems Specialist

PerkinElmer Life and
Analytical Sciences
710 Bridgeport Avenue
Shelton, CT 06484 USA

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PerkinElmer Life and Analytical Sciences
710 Bridgeport Avenue
Shelton, CT 06484-4794 USA
Phone: (800) 762-4000 or
(+1) 203-925-4602
www.perkinelmer.com

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